

REMARKS

Claims 45 and 46 are amended. Claims 1-44 and 50-53 were previously cancelled without prejudice to the underlying subject matter. Please consider the following remarks.

Claims 45-48 stand rejected under 35 U.S.C. § 102(e) as being anticipated over U.S. Patent 6,737,356 ("Dow"). Applicants respectfully traverse this rejection.

Claim 45, as amended, defines a semiconductor device and recites "an insulating layer" and "an opening in said insulating layer, said opening having sidewalls and a bottom, said bottom being substantially free of polymer residue and silicon rich oxide residue" and "a conductor in said opening." Such a device is not taught or suggested by Dow.

Dow does not disclose a device having an opening with "a bottom, said bottom being substantially free of polymer residue and silicon rich oxide residue." Although Dow explains the importance of having a contaminant free contact opening, it does not discuss the problem of polymer etch residue and the techniques for effectively removing this residue, without leaving a silicon rich oxide residue during the removal. Dow does not include a disclosure like that of the present application, which describes how to form a contact opening substantially free of polymer residue and silicon rich oxide residue, as recited by claim 45. Therefore, Dow does not anticipate independent claim 45 because it does not deal with the specific contaminants recited by the claim. Applicants respectfully request that the 35 U.S.C. § 102(e) rejection of claim 45 be withdrawn.

Claim 46, as amended, defines an integrated circuit and recites "an ammonia-cleaned High Aspect Ratio opening provided in an insulating layer, said opening being formed over a polysilicon region and a bottom of said opening being substantially free of polymer residue and silicon rich oxide residue" and "a conductor within said opening, said conductor being electrically connected with said polysilicon region." Such a device is not taught or suggested by Dow.

As discussed above in relation to the patentability of claim 45, Dow does not disclose a contact opening with "a bottom of said opening being substantially free of polymer residue and silicon rich oxide residue." Therefore, for the same reasoning as set forth above for claim 45, independent claim 46 is not anticipated. Additionally, Dow does not disclose "an ammonia-cleaned High Aspect Ratio opening," as claimed. Dow is cited as disclosing an ammonium fluoride (NH_4F) cleaned HAR opening; however, ammonium fluoride is not ammonia (any more than hydrogen peroxide, H_2O_2 , is water, H_2O). For each of these reasons, Dow does not anticipate independent claim 46 or dependent claims 47 and 48. Applicants respectfully request that the 35 U.S.C. § 102(e) rejection of claims 46-48 be withdrawn.

Claim 49 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Dow in view of U.S. Patent 5,685,951 ("Torek et al."). Applicants respectfully traverse this rejection.

Claim 49 depends from claim 46, which has been discussed above as patentable over Dow, individually. Use of Dow in this obviousness rejection is improper pursuant to 35 U.S.C. § 103(c), because the subject matter of Dow qualifies as prior art only under 35 U.S.C. § 102(e) and that subject matter and the invention claimed in this application were, at the time the invention was made, subject to an

obligation of assignment to the same entity, to wit, Micron Technology, Inc. This obligation is evidenced by the assignments attached hereto at Appendix A. The 35 U.S.C. § 103(a) rejection of claim 49 is respectfully requested to be withdrawn.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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Attachments: Appendix A

APPENDIX A

Assignment for U.S. Patent Application 09/499,594; US. Patent 6,737,356
Assignment for U.S. Patent Application 10/787,125